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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,694	11/25/2003	Fritz Friedersdorf	4271-13	3045

23117 7590 09/01/2005

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ARLINGTON, VA 22203

EXAMINER
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LEE, PATRICK J

ART UNIT	PAPER NUMBER
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2878

DATE MAILED: 09/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/720,694	FRIEDERSDORF ET AL.	
	Examiner	Art Unit	
	Patrick J. Lee	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☒ Claim(s) 8,9 and 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>1103</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's selection of the claims of Group 1 (1-24) and cancellation of the claims of Group 2 (25-43) without traverse are acknowledged.

### ***Claim Objections***

2. Claims 8-9 & 23 are objected to because of the following informalities:

With respect to claim 8, "magnetorestrictive" should read "magnetostrictive".

With respect to claims 9 & 23, the preamble of the claim should be consistent with other dependent claims of the independent claims.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-2, 12-13, 15, & 17 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,888,124 B1 to Smith.

With respect to claim 1, Smith discloses a device for monitoring electrical systems comprising: a wire (3) as a coated element; fiber optical cable (5) with fiber

Bragg gratings (7) as a fiber optic condition sensor; and electrical insulation coating (4) as a coating for coating the wire (3) and fiber optic condition sensor (5).

With respect to claim 2, Smith discloses the sensor for sensing temperatures or vibrations (see column 3, lines 10-20).

With respect to claim 12, Smith discloses a device for monitoring electrical systems comprising: a wire (3) as a wire element; fiber optical cable (5) with fiber Bragg gratings (7) as a fiber optic condition sensor; and electrical insulation coating (4) as a electrical insulator for surrounding the wire (3) and fiber optic condition sensor (5).

With respect to claim 13, Smith illustrates the fiber optic condition sensor embedded physically within electrical insulator (4).

With respect to claim 15, Smith discloses the sensor for sensing temperatures or vibrations (see column 3, lines 10-20).

With respect to claim 17, Smith discloses the fiber optic sensor (5) to be substantially parallel to the wire (5).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 3-11, 14, 16, & 18-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,888,124 B1 to Smith.

Smith discloses the device as described in the discussion of claims 1-2, 12-13, 15, & 17.

With respect to claim 3, Smith discloses the wire (3) to conduct electricity, but does not explicitly disclose the insulator (4) to be polymeric coating. However, such would have been obvious to one of ordinary skill in the art in order to protect the wiring and to prevent the electricity passing through the wire from adversely affecting the system and surroundings.

With respect to claim 4, the modified Smith discloses the use of fiber Bragg gratings (7) but does not explicitly state their use in a series of axially spaced apart Bragg gratings. However, such use would have been obvious to one of ordinary skill in the art as the series of gratings allows for detection/monitoring at a plurality of places along the wire (3).

With respect to claim 5, the modified Smith only illustrates the use of one fiber optic sensor (5), but the use of a plurality of fibers embedded in insulation (4) would

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have been obvious to one of ordinary skill in the art because such would give the device ability to inspect at different points in a radial direction of the wire.

With respect to claim 6, the modified Smith discloses the use of fiber Bragg gratings (7) but does not explicitly state their use in a series of axially spaced apart Bragg gratings. However, such use would have been obvious to one of ordinary skill in the art as the series of gratings allows for detection/monitoring at a plurality of places along the wire (3).

With respect to claim 7, the modified Smith discloses the sensor for sensing temperatures or vibrations (see column 3, lines 10-20).

With respect to claim 8, the modified Smith does not explicitly state the coating being magnetostrictive, but such would have been obvious to one of ordinary skill in the art in order to prevent external magnetic field from adversely affecting the readings of sensor (5).

With respect to claims 9-11, the use of a data acquisition system is not explicitly disclosed, but such would have been obvious to one of ordinary skill in the art because such would allow for the operator of the device to monitor the device.

With respect to claim 14, the modified Smith does not disclose the use of a plurality of electrical conductors, but such would have constituted mere duplication of parts as the fiber optic sensor (5) would be able to monitor multiple wires.

With respect to claim 16, the modified Smith discloses the use of fiber Bragg gratings (7) but does not explicitly state their use in a series of axially spaced apart Bragg gratings and the use of plurality of sensors. However, such use would have been

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obvious to one of ordinary skill in the art as the series of gratings allows for detection/monitoring at a plurality of places along the wire (3) while the additional sensors (5) would have constituted obvious duplication of parts as the additional sensors (5) would provide measurements at different places in a radial direction of the wire.

With respect to claim 18, the modified Smith discloses the wire (3) to conduct electricity, but does not explicitly disclose the insulator (4) to be polymeric coating. However, such would have been obvious to one of ordinary skill in the art in order to protect the wiring and to prevent the electricity passing through the wire from adversely affecting the system and surroundings.

With respect to claims 19-22, the modified Smith does not explicitly disclose the coating as such, but such would have been obvious to one of ordinary skill in the art in order to provide the wiring with adequate protection.

With respect to claim 23-24, the use of a data acquisition system is not explicitly disclosed, but such would have been obvious to one of ordinary skill in the art because such would allow for the operator of the device to monitor the device.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 5,015,859 to Uejio discloses a fiber optic sensing system for electrical wires.

US 6,559,437 B1 to Pope, Jr. et al disclose a fiber optic damage sensing system for wiring and cables.


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick J. Lee whose telephone number is (571) 272-2440. The examiner can normally be reached on Monday through Friday, 8:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patrick J. Lee  
Examiner  
Art Unit 2878

PJL  
August 25<sup>th</sup>, 2005

  
Stephane B. Allen  
Primary Examiner